Introduction to Computer Science I

Switch Statement

Janył Jumadinova

November 9, 2016
Control Structures

- Java programs are built from only these seven control structures:
  - *three selection* (if, if/else, switch)
  - *three repetition* (while, do/while, for)
- You implement computer algorithms by stringing sequences of these seven control structures together.
Selection

- if statement is a single-selection structure.
- if/else statement is a double-selection structure.
Selection

- if statement is a single-selection structure.
- if/else statement is a double-selection structure.
- What if you have a series of integral values you would like to test and you might possibly want to trigger multiple actions based on one value?

A switch statement can re-implement most if or if/else structures more compactly.

You can execute more than just one action with a switch, as opposed to the way a nested if/else structure works.
Selection

- if statement is a single-selection structure.
- if/else statement is a double-selection structure.
- What if you have a series of integral values you would like to test and you might possibly want to trigger multiple actions based on one value?
- A switch statement can re-implement most if or if/else structures more compactly.
- You can execute more than just one action with a switch, as opposed to the way a nested if/else structure works.
Switch

char character ;
switch ( character )
{
    case 'a':  // case labels
    case 'e':  // separated by :
    case 'i':  // character
    case 'o':  // notice use of ‘ ’
    case 'u':  // marks for char tests
        System.out.print (character +" is a lowercase vowel
" );
        break;
    default:
        System.out.print (character +" is not a lowercase vowel\n" );
}
Switch Statement

- Control flow continues with the first statement following the switch block.
Switch Statement

- Control flow continues with the first statement following the switch block.
- The break statements are necessary because without them, statements in switch blocks fall through.
Switch Statement

- Control flow continues with the first statement following the switch block.
- The break statements are necessary because without them, statements in switch blocks fall through.
- All statements after the matching case label are executed in sequence, regardless of the expression of subsequent case labels, until a break statement is encountered.
Switch Summary

- **if and if/else** can test ranges of numbers using relational operators (`>`, `<`, `≥` and `≤`) and inequality (`!=`) operators.
- The **switch statement** can only make exact matches of values (`==`).
- The **switch statement** works with `int`, `char`, `byte`, `short`, `String` and some other special (`enum`) data types.
- **if and if/else** can test other data types such as floating point numbers.
- **if and if/else** can find one condition to be true and execute an action.
- Switch statements find one match and continue executing code until a `break` is found.
Switch Summary

- if and if/else can test ranges of numbers using relational operators (>, <, ≥ and ≤) and inequality (! =) operators.
- switch statement can only make exact matches of values (==).

if and if/else can test other data types such as floating point numbers.

switch statements find one match and continue executing code until a break is found.
Switch Summary

- **if and if/else** can test ranges of numbers using relational operators (> , < , ≥ and ≤) and inequality (!=) operators.
- **switch** statement can only make exact matches of values (==).
- **switch** statement works with int, char, byte, short, String and some other special (enum) data types.
Switch Summary

- **if and if/else** can test ranges of numbers using relational ($>$, $<$, $\geq$ and $\leq$) and inequality ($!=$) operators.
- **switch** statement can only make exact matches of values ($==$).
- **switch** statement works with int, char, byte, short, String and some other special (enum) data types.
- **if and if/else** can test other data types such as floating point numbers.
Switch Summary

- if and if/else can test ranges of numbers using relational operators (>, <, ≥ and ≤) and inequality (! =) operators.
- switch statement can only make exact matches of values (==).
- switch statement works with int, char, byte, short, String and some other special (enum) data types.
- if and if/else can test other data types such as floating point numbers.
- if and if/else can find one condition to be true and execute an action.
Switch Summary

- if and if/else can test ranges of numbers using relational (> , <, ≥ and ≤) and inequality (! =) operators.
- switch statement can only make exact matches of values (==).
- switch statement works with int, char, byte, short, String and some other special (enum) data types.
- if and if/else can test other data types such as floating point numbers.
- if and if/else can find one condition to be true and execute an action.
- switch statements find one match and continue executing code until a break is found.